**Process Chemistry: A Linchpin in Drug Substance**

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***Abstract***

Creating a drug is a complex process involving many departments and different jobs, in which chemists play an important role in both drug discovery and development phases. The goal of process chemistry, traditionally, has been to develop scalable synthetic routes that are safe, cost-effective, and environmentally benign. In modern pharmaceutical research, however, with increasing demand for accelerated drug discovery and early establishment of viable manufacturing route, the process chemistry’s role has expanded to encompass from enabling drug discovery to regulatory filing support. The increased responsibility, in turn, presented a range of different challenges that require strategies appropriate to each development phase. In this presentation, a series of chemistry development examples will be discussed to illustrate how process chemists at MSD address challenges in different stages of drug development.

***Biography***

Dr. Cheol K. Chung received his B.S. and M.S. degree in chemistry from Seoul National University in Korea. After working for LG Chemical Ltd. in the pharmaceutical division for 5 years, Cheol moved to the United States and joined the research group of Professor Barry Trost at Stanford University, where he explored the transition metal catalyzed transformations of alkynes and their application to natural product synthesis. After completion of his Ph.D. in 2006, Cheol moved to California Institute of Technology for postdoctoral training to further his knowledge in organometallic catalysis under the supervision of Professor Robert Grubbs. In 2008, he joined the Merck Research Laboratories in Rahway, New Jersey, where he currently holds the position of Associate Principal Scientist in Process Research Department. His main areas of interest are the application of catalytic reactions in organic synthesis, designing efficient and practical synthesis of complex drug candidates, and development of new reactions using high-throughput experimentation.